Rest and Exercise

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LADIES AND GENTLEMEN,

It is my privilege and my pleasure to welcome you on behalf of the Medical Staff to the practice and the teaching of the Royal Victoria Hospital on this the opening of a new session.

You have chosen Medicine as your life's work. Let me congratulate you on your choice of career though I would remind you that Medicine is not an easy calling. It demands—over and above factual knowledge—judgment, concentration, good humour, tolerance, kindness and tenderness towards human beings and, above all, a deep consciousness of one's obligations and responsibilities to the sick. These are aspects of human behaviour which you must try to cultivate for without them you can never hope to become really good doctors no matter how great your scientific knowledge. Reading textbooks and listening to lectures is not enough. Only by direct contact with human suffering can your pity and charity be stimulated and the virtues I have just mentioned be germinated and in time brought to full growth. If you are interested in humanity you will become good, possibly even a few of you will become great, doctors. Our hospital offers you in the wards and the out-patient departments the opportunity to become so.

During your years of attendance at the hospital you will learn a little about many things unheard of when I was a student. In my time we were taught that the saving of life and the easing of pain were two of the chief functions of a doctor. In those days the doctor saved life now and then. Today life saving is a commonplace, thanks to the development of anti-biotic drugs, excellent methods of anæsthesia and with them safe surgery to mention only a few of many advances. In spite of the changes over the past thirty years, and they have indeed been great, relief of pain still chiefly interests the patient, and skill in this direction forms an important part of a doctor's life. The sufferer wants action, he is uninterested in theories for, to him, there is no virtue in needless suffering or in submission to misery because the means of succour are withheld through carelessness, lack of knowledge, or for any other reason. I would advise you, therefore, to think a lot about pain, its causes, its significance and the measures both medical and surgical necessary for its relief, for you will find as you mature that the ability of a really good doctor can be measured by his capacity to distinguish between the trivial and the serious and who knows when to wait and when to act swiftly.

Up to the present you have been chiefly concerned with the study of the structure and functions of the human body. From now on you will be learning how this functioning body reacts to injury and to disease and what methods of treatment can be adopted to help to restore it to health.

Medicine is the aggregate of all knowledge to do with the human body and so I must remind you that the study of anatomy, physiology and pathology, far from being a passing phase in your education, must continue along with clinical medicine and surgery. Indeed, the association of clinical and non-clinical subjects is one we cannot, we dare not, break throughout our whole medical lives. We can subdue Nature only by obeying her, i.e., by understanding her. Recognition of the inescapable framework which hems in every biological process is the first essential to the sane conduct of treatment. You must, therefore, remember your Anatomy, your Physiology and your Pathology and revise them yearly throughout your lives. The rules of the game are to be found in these three subjects and only a thorough knowledge of these rules allows the game to be played freely for its own sake without waste of futile and hazardous effort.

When Blaise Pascal wrote "Il ne faut pas juger de la Nature selon nous, mais selon elle," that is to say we mustn't judge Nature according to our lights but according to hers, he was condemning a mistake which I fear some of us make when we try to explain to our patients, and indeed to ourselves, the reactions of the body to disease by likening it to a machine, a motor car for example. How wrong this is! The body, unlike any machine, has a brain through which has developed a mind and, being activated by cellular processes, it possesses intrinsic powers of self repair, something a machine can never acquire. Whatever part, therefore, we, the medical mechanics, may play, the final restoration from the ravages of injury and disease is effected by powers inherent in the living tissues of the patient. Let's never forget either the part the human mind has to play for who can tell what man, that is the whole man, really is.

Nature is the master, the doctor, the assistant. This was the final conclusion which John Hunter came to in the latter years of his life and when he was recognised by his professional colleagues, as well as by the public, as the leading British surgeon in the latter half of the eighteenth century.

This lesson of Hunter's is needed at all times and I dare to think in none more than the present. The doctor can, if he will, assist these powers of repair. He must always see to it that he makes Nature's job easier if possible but must be certain that he never stands in her way or frustrates her by unnecessary meddling, for the power to heal lies not in his hands. By the nature of things the surgeon is more liable to fall into this trap than is the physician. Here I would like to quote from Florence Nightingale. "It may seem a strange principle to enunciate," she says, "as the very first requirement of a hospital that it should do the sick no harm even if it does them no good." Students, therefore, must appreciate early in their careers that the glamour of the operating theatre and the intricacies of surgical technique are mere adjuncts to, not replacements of, the healing powers of Nature. In modern operative surgery the doctor's share in effecting a cure is unquestionably

great, but whether what he sets out to achieve at his operation is to become a permanent feature or not depends entirely on biological processes—that is the power to heal—over which he has no real control. In limb surgery there is another factor —the power to recover function. This is a property of the patient's will and brain and it is the doctor's business to direct, encourage, interest and if need be cajole that will and brain. If he would only do this he would never make the mistake of supposing that elaborate batteries of gymnastic apparatus can take the place of his own thinking brain and the willing response of his patient.

Nature in her efforts to effect cure has two powerful natural allies. I refer to Rest and Exercise and I would now direct your thoughts to these two principles in relationship to that branch of medicine which interests me most, namely Orthopædics. This speciality has to do with injury and disease of the locomotor system—those parts of the body by which we move, namely the arms, the legs and the spine and their associated muscular, nervous and vascular elements.

It is probable that man from early times cared for his broken bones and diseased limbs in much the same way as do the higher animals, that is by instinctive rather than judicious application of rest and movement. In the words of Annie of musical comedy fame, early man probably did what comes naturally. Since then we have learnt how to augment rest by support and splintage and how to increase the benefits of motion by assisted movements and physical measures. With our increased knowledge, however, has come the big question. Is it to be rest or is it to be exercise? The answer depends on many factors including the cause, the reaction of the tissues, and the physiological effects of the injury or disease under consideration. Even when these are known, however, it is sometimes difficult to decide. In early times the choice was probably simple. To survive early man was forced to be active, since the whole structure of primitive life was dependent upon strength and speed. The family had to defend itself, kill game and always be ready for prolonged endurance, instant retreat and spells of famine. A man crippled by injury or disease was consequently an unreasonable burden for the tribe to support. Possibly an occasional chieftain or warrior injured heroically was honoured for his disability but there could be no other logical excuse for his maintenance in the perpetual struggle for existence. One suspects that those who were inactive were simply left behind to die or to be killed by the marauding beasts of the field. This policy of destruction reached its zenith in the rational ethics of the Spartans who destroyed the imperfect for racial supremacy where the primitive code had annihilated the infirm for survival.

During the long period of Greek influence on medicine the controversy on rest versus activity was already an old one. Greek philosophic thought boldly condemned all forms of exercise as not only of no advantage but even prejudicial to health, and recommended rest as the chief preserver of it. On the other hand there was Hippocrates who taught that "exercise strengthens whilst inactivity wastes." Here in a few words is all our scientific knowledge of the physiology of the atrophy of disuse. Early movement of injured limbs is one of the principles recognised by

the ancients, ignored for almost two thousand years and, in the past two hundred, almost perennially rediscovered.

I will not bore you, however, with the beliefs of the ancients, hemmed in as they were by their theories of the body humours and the wrath of God. Rather I will follow Voltaire who once remarked that he would advise a young man to acquire a slight knowledge of remote ages but would have him begin the serious study of history at that period where it becomes truly of value to him.

In searching for useful knowledge on rest and exercise we need only go back to the 18th century, to France and to Dr. Nicolas André. In 1741 he published a treatise entitled "Orthopædia," a term which he coined from the Greek and which signifies a child upright or free from deformity. André lived in a period when men were convinced that they could improve upon Nature. Nature, they believed, had to be tamed, disciplined and trimmed and so they applied to the human body the same pruning, training and shaping as they did to their fantastic garden shrubs and bushes. André taught that the methods of orthopædics were within the grasp of parents since he could not conceive of a time when a mother would not take pains to secure for her daughter a properly shaped waist line—one which was perfectly flat in front but full, prominent and curved in the region of the buttocks. This was to be obtained by the early and proper use of stays. Within the scope of orthopædics André included not only the fashioning of the waist but the care of the nails and hair, the shaping of the hands and nose, the arching of the eyebrows and also much of what today has become the stock in trade of the beauty specialist and the mistress of deportment. A lot of his teaching was connected with uprightness though not what today we would call orthopædics. He did develop, however, one important truth—muscles are the chief instruments in shaping a child's body and it is upon these instruments that a physician may play his orthopædic tune. He learnt about muscles not by dissecting room study but by ordinary common-sense observation. For example, the corpulent man and the pregnant woman walk with a straight back, even an over extended one, because they are overloaded in front. If a youth stoops then the natural way to bring the muscles of his spine into play and give him an erect carriage is to make him carry a budren in front of his body or hang a weight from his neck. André encouraged exercises to the appropriate muscles, even to the stage of over-correction of the deformity, for he knew that with a crooked body, as with a crooked stick, you have to over-correct the deformity if you would aim at obtaining the just mean. He included as exercise the toil of ordinary everyday work as well as the play and games of children and the fencing, dancing, riding and even billiards of adults. Work and exercise were to him the best medicines of health but they had to be taken in proper dosage and at times required their proper antidote, namely rest. We see, therefore, that the founder of orthopædics recognised that rest as well as action had its own particular merit but, of the two, exercise was that to which he attached the higher value.

From André in France our search now brings us to London where in the year 1823 we find Dr. John Shaw of the Middlesex Hospital concerning himself with

the problems of spinal curvature. He soon became convinced that the curvatures were evidences of weakness of the spinal muscles. Why this weakenss occurred he knew not though he observed that the deformities developed most frequently during spells of active growth. It is interesting to note that this study of his began in the anatomy department of the old Windmill Street Medical School tucked away in Soho a stone's throw from Piccadilly Circus. There is no medical school there now, though in the old building anatomy can still be studied which is both animated and animating. I refer to the Windmill Theatre which today remains as the joy and delight of older men who cling to the heretical faith of the triumph of hope over experience.

During Shaw's time rest and support was the treatment in vogue in England but Shaw rebelled against this and claimed support from what he called the "eternal law of disuse." The proper treatment for weak muscles was in his opinion not rest but graduated exercise. Impressed by the success which he saw attended the empirical efforts of rubbers, i.e., masseurs, and of the unqualified generally, he was led to formulate the principle of action. He embarked on all the tricks of the rubber: massage, shampooing, thumping, pinching, percussion and kneading. Set exercises were then given employing apparatus of various kinds where movements of the arms were used to influence the upper part of the spine and leg movements the lower part. Between doses of rubbing and exercises were spells of rest either by reclining or by the application of stays or spinal machines. Thus he realised that gymnastics and massage had a place in the therapeutics of surgery. Sad to relate, his influence on British thought disappeared rapidly after his death in 1827, in his 38th year, from typhoid fever.

About Shaw's time Jacques Delpech in France had reached similar conclusions about muscular exercise and its value in the treatment of deformities. He believed that the normal poise of the body is the result of a balanced action between opposed groups of muscles and if this balance is upset then deformity results. The surgeon's business was to cure deformities by restoring the muscular balance. He was convinced that this could only be done properly in a special institution. He therefore mortgaged his worldly wealth and, having purchased a plot of ground on the high road between Montpellier and Toulouse, he built there the world's first orthopædic hospital. He hoped in this institution to make his clinical cases yield up their physiological secrets. Inside its walls he gathered cases of deformity which he felt could be studied, treated and noted for the benefits of science. His hospital was to be a type of human menagerie or experimental garden, for Delpech was most surely the pioneer of physiological surgery in Europe. Here was on a great scale the first organised attempt to apply gymnastics to the treatment of deformities of the human body. Delpech, whilst an orthopædic missionary, was a realist and disciplinarian and he always warned the parents or guardians of those entering his institution that time, patience and perseverance would be necessary before cure could be effected. Many of his patients had to submit to fourteen out of twenty-four hours lying extended and stretched on various forms of apparatus though Delpech only regarded this as an accessory in treatment and eventually

periods of gymnastics were worked into the daily routine. He gave his imagination a free hand in designing a great variety of apparatus for he was well aware that only by trying a succession of changes could he maintain the patient's interest in the laborious efforts needed to bring about a cure. Unfortunately we do not know the degree of success which attended this great experiment since Delpech died rather tragically before he could publish his results. He was shot dead by one of his patients upon whom he had operated for a varicocoele. After his death the Montpellier institution became forgotten and neglected and in a few years only a mass of weeds and crumbling masonry survived to mark the spot. We remember, however, that in the early decades of the 19th century and in the south of France one of the ablest surgeons of his time was convinced that gymnastic exercise constituted the best means of remedying certain deformities of the human body.

From the south of France our search now leads us to the south of Sweden and to the province of Skane. From this place there began a movement in the evolution of gymnastics which in its ultimate effects was destined to have a world-wide influence. Pehr Henrik Ling was born in 1776 and destined for the Church, indeed he actually studied at the University of Uppsala for this purpose. In his mature years, through his interest in gymnastics, he strayed into the outskirts of medicine. He gained his knowledge not by anatomical study but by observation of the ordinary movements we perform and the postures we assume in our daily duties. Ling was not only a scholar and a poet but was also a professional teacher of fencing in the University of Lund. In teaching the art of fencing he saw that all depended on the mastering of the muscles by the fencer's brain. When his pupils first came to him he observed that the special movements which he wished them to perform were impeded by other unnecessary movements which they employed from force of habit and past use. He therefore embarked on the production of an alphabet of simple movement and he developed a series of exercises covering the whole keyboard of bodily motion. Exercises and gymnastics had not only developed his own muscles but given him health and strength as well, for he had suffered from some form of multiple arthritis in his youth. Eventually he produced a system of medical gymnastics aimed at positive health and fitness and he included massage, kneading and all the various forms of manipulation by which friction and pressure can be brought to bear on the living body. Ambrose Paré humbly said "I dressed him, God cured him," but neither Ling nor his disciples took such a humble point of view. *They* wrought the cures and *they* made the converts. Ling's original methods were simple but the modern representatives of the Swedish school have added to muscle training a bewildering code of arbitrary and empirical practices and even a jargon of pseudo-pathology. All this can only be justified by the benefits which are said to attend their application. If we adopt empirical practices we have to make doubly sure that the results obtained are due to the means we have applied. We must ever remember that all living flesh is endowed with inherent powers of repair and of recovery so that in a large percentage of all our cases a cure would naturally occur without the intervention of any outside agency. If our practices have no known rational basis then it is out duty to determine by research

and controls how far the means we employ are accessory to the cure which has taken place and not to fall into the trap of thinking that we and our methods are replacing Nature. This was the trap into which the disciples of Ling fell; they continued a practice without first seeking a principle.

But I digress. Before Ling died he persuaded the Swedish government to found a central gymnastic institution and as a result he left behind him a permanent organisation and devoted band of pupils to carry on his work. From that centre in Stockholm his teaching has spread to the playgrounds of schools, barrack yards and hospitals of every civilised country in the world. That great benefit has resulted no one can reasonably doubt and Swedish drill is something that everyone in this room has indulged in at some time, whether voluntarily or as part of a school curriculum under the watchful eye of the "Gym" instructor, or as treatment in a physiotherapy department of a hospital.

But what of the *passive* measures of physiotherapy? What case can be made out for regarding them as constituting a scientific practice? The use of the elements and the simple physical phenomena of Nature is the oldest form of therapy known to man. The early temples of the healing gods of Egypt, Greece and Rome were invariably built round springs of curative waters. Bathing pools of hot and cold water were in common use throughout the Roman Empire. The application of heat and cold, as stoupes or compresses, was recognised therapy when mankind was in its infancy, and in all ages of recorded history the arthritic patient has found his greatest relief at the spas, either secular or religious.

The same is true of sunlight although the ancient civilisations, being situated in sub-tropical regions, did not recognise its value as distinctly as did the northern races somewhat later. The application to the body of electrical currents is not by any means new. In ancient Greece amber, subject to friction, was used as a source of stored electrical energy, and its curative powers were greatly sought after.

Friction of the muscles of the body by rubbing, kneading and pinching was established practice in the Gymnasia of the Greeks as a method of increasing the strength of young men undergoing training for the purposes of war or for competition in the public games.

All these practices have continued up to the present day though we have now introduced machines for the generation of heat, sunlight and electrictiy, thereby making us independent of Nature for our supply of these energies. We still use water and we still apply friction. Only the names and the sources of these physical measures have changed—we now talk of electro- and electrothermal therapy, heliotherapy, hydortherapy and massage, and if we are thinking of the lot we speak of physiotherapy.

The practice has not changed, except in details and methods of organisation, but do we yet know how passive physical measures work and are we really sure what, if any, influence they have on the pathological and biological processes which we call disease and repair?

Ancient and accepted usage does not make any practice scientific nor does the cloaking of empiricism by pseudo-medical explanation further our search for reason

and truth. Lots of benefits have been claimed for the various physical measures which are today employed—they have a sedative effect and diminish pain, swelling is decreased and lymph and blood circulation improved, muscle spasm is relieved, the "pain pattern" is broken—but these are only expressions easy to put across to the patient who, in his ignorance, still accepts a sort of mechanistic view of his body and knows nothing of the elaborate and complex biological processes which underly repair from injury and disease.

In 1926 Titus of New York claimed that physiotherapeutic measures can be used in the treatment of *any* pathological process in an attempt to convert an inadequate reaction on the part of the patient into one that is adequate. This claim was not backed up by "controls" nor were his findings ever submitted to the constructive criticism of unbiased observers. The claim, therefore, makes no sense, as it is simply a statement of faith or hope, something which G. L. Mencken tells us, in another connection, is belief in the improbable.

Dr. Mennell—in his day a recognised exponent of physiotherapy—seeking an explanation for the effects claimed for passive measures, contended that they probably are obtained by "playing" upon the reflex mechanisms of the body. These are spinal and sympathetic reflexes which control the state of muscle tone and the degree of constriction or dilatation of the blood and lymphatic vessels. What the word "playing" means I do not understand.

In cases of injury the movements of massage, the application of heat, the stimulation of muscles by electrical currents apparently in some mysterious way effect restoration of the normal control mechanism. This is surely an enormous claim to make. Is it true? Again can you believe what Cyriax says in regard to chronic ligamentous sprains? Do his words even make sense? I quote from his book on orthopædic medicine—"In chronic cases friction, i.e., deep massage, *thins* out the scar tissue by which the fibrous structures are held abnormally adherent and so *numbs* them that mobilisation becomes possible." Are the explanations of Mennell and Cyriax simply words, or do they "make the punishment fit the crime." I do not know, though by nature I am a doubting fellow.

Certain points are, however, beyond dispute—many patients say they are benefited by the measures which have been applied, some are certain that physiotherapeutic treatment has increased their discomfort, whilst others are like Sir Walter Scott's Marmion, "uncertain, coy and hard to please." In certain cases of chronic illness physiotherapy undoubtedly makes the patient feel that something important is being done for him. That it has a strong psychological effect no one will deny or will any deny the psychological benefits of physiotherapy nor, particularly in injured cases awaiting litigation, the psychological disadvantages. One thing is certain—we must never, never, consciously give the patient the impression that we have brought to the bedside the means of cure and all that is required of him is that he submit passively and allow a miracle to be performed.

When we come to the application of physical measures, and particularly heat and massage, in the later period of recovery from orthopædic disorders we are

outside the realm of doubt or of dispute. To use a modern expression "we are in the clear" if we use physical measures only as a preparation to encourage the patient to be active, i.e., to exercise. This preparation is simply the production of muscle hyperæmia. The essential for success is that the patient must be an active and not a passive participant in the process. Ling was ever mindful of this and no one knew better than he that in recovery of movement, irrespective of the nature of the damage to the body, the active agent assisting in this recovery is the patient's will and brain.

During its long course of development, from early simple measures to the modern complex apparatus for the administration of a multiplicity of physical energies, physiotherapy has been the hand-maiden of every branch of Medicine. It is therefore the duty of Medicine, and I include all specialities, to submit these practices to modern scientific control and logical assessment, so that what is good, helpful and reasonable may be developed further, and what is unscientific and therapeutically useless be finally and without fear discarded.

Now we must return to Rest and Exercise.

John Hilton of Guy's Hospital published in 1862 a series of lectures in book form entitled "Rest and Pain." In his fourteenth lecture he states, "By regarding this subject of physiological and mechanical rest in what I conceive to be its proper light the surgeon will be compelled to admit that he has no power to repair directly any injury. It will induce him to acknowledge in all humility that it is the prerogative of Nature alone to repair the waste of any structure." Hilton believed that the surgeon's first duty was to give injured parts rest and in his scheme of therapeutics action found no part. Neither active nor passive movements were considered suitable in attempting to restore disorders of joints or muscles. Hilton, however, used the term "Rest" in a very wide sense. He did not mean pure passivity until Nature had effected a cure but he included also the removal of irritants which were preventing rest taking place. In the class of irritant he included a wide variety of lesions from stones in the bladder through abscesses in various parts even to painful scars, all of which were to be neutralised, i.e., removed before true rest could be effected. He considered rest a physiological state which was to be taken not in intermittent doses but through a long continuous course. The application of splints was his chief means for securing this desired physiological state when joints were the seat of the trouble.

His service to surgery lies not so much in the forms of splints which he recommended as in his insistence on their unremitted application. John Hilton preached the gospel of rest freshly and persuasively but Hugh Owen Thomas of Liverpool made it his religion and ritual and believed that an overdose of it was an impossibility. To use the expression that Thomas never tired of repeating—"Rest must be enforced, uninterrupted and prolonged." Thomas was a Welshman coming from a long line of unqualified bone-setters; but he was a doctor—his father saw to this, as he believed that medical training could give something to his son which he and his forebears had up to that time lacked. Hugh Owen flourished between 1834 and 1891. His field of experience was in the general practice of the

dock-land of Liverpool and his material the steady stream of accident cases which poured into his surgery from that great water-front. It was his greatest merit to have shown that a busy general practitioner can, by purely clinical methods, win for himself a permanent place among the great benefactors of Medicine. After each day's work Thomas was to be found in the attic room of his house, which he had converted into a workshop. Here, with expert hands, he produced the exact form a splint or appliance which he desired for the treatment of each particular case under his care. Thomas was a new kind of surgeon, one who could and did operate but whose eventual opinion was that the forge and the hammer, deftly used to produce the properly fitting instruments of rest—namely splints—were in most cases more powerful aids to reparation than the surgeon's knife. Towards the end of his life he wrote, "The crying evil of our art in these times is the fact that much of our surgery is too mechanical, our medicine too chemical, and there is a hankering to interfere which thwarts the inherent tendency to recovery possessed by all persons not actually dying." These words were written over seventy years ago. The more one thinks about them the more one finds them still wonderfully true.

Thomas has left us his splint, which is still in use the world over, unchanged in design from the original models made by his own hands in the attic room in Liverpool. I venture to suggest that his splints fitted his patients accurately and comfortably since each one was a tailor-made job. How unlike the modern splints, to be seen in a hospital splint cupboard, which occur in three sizes—Big, Bigger and Biggest—to quote from the late Professor McMurray who was a distinguished graduate of Queen's University.

In Nature there are two methods of giving limbs the degree of rigidity necessary for support and movement. In vertebrate animals there is an internal support—an endo-skeleton—whilst in invertebrates the support is external or ensheathing—an exo-skeleton. Thomas probably did not borrow any suggestions from the crab or the lobster and yet his knee splint is based on the ensheathing principle shown in these creatures' limbs. He cut away all unecessary parts of the sheath leaving a basal ring round the inguinal region with two long bars extending one on either side of the limb from the ring to the foot. To this splint the limb was anchored by suitable bandaging or strapping. He thus furnished the limb with a new and temporary exo-skeleton which relieved its bones and muscles of work and stress. Thomas fashioned splints for all parts, but the example of his knee splint shows clearly that the principle of rest, which was his creed, depended on harnessing the affected parts of the locomotor system to a temporary exo-skeleton for the period which Nature would require to bring about a cure of the underlying disease.

Thomas holds an unique position in orthopædics since he is the only man who has grown in medical stature after his death. I venture to suggest that today surgeons know more of his work and believe more in the principles of his practice than his contemporaries did.

Long before the time of Thomas, immobilisation of diseased joints had become the accepted practice in Europe. The principle of rest appeared to have found a

permanent and undisputed place in surgical procedure throughout the whole world. There were, however, rebels, and how difficult their job was to convince their colleagues that action as a curative agent had a big role to play in restoring health to a part which had been injured by accident or put out of action by disease.

Among these was a Frenchman—Juste Lucas Championnière. He had no wish to bludgeon those who disagreed with him but nevertheless he persuaded his colleagues that his method was the proper one. In his opinion the right approach to locomotor disorder was the opposite to what had been taught for so long. He was honest, courteous and sauve in the propagation of a heterdox doctrine and his colleagues could not but listen to him. He had the power of presenting his own views so lucidly and so convincingly that, after listening to him, no other view than his seemed to the hearer tenable or possible. Soon he was to advocate the treatment of all fractures in which joints were involved by the early application of movement. Soon he became known as the "ankylophobe." In time so certain was he that splints rendered joints stiff that he gradually laid aside the whole armamentarium of splintage until ultimately it was only in cases of fracture of the thigh that he applied any means of restraint at all. It is interesting that he came to this belief shortly after the Franco-Prussian war when plaster of Paris was intoduced by the untiring efforts of Mathijsen of Holland. It must surely have required a brave and forceful surgeon to deny the use of such a handy splint maker as plaster of Paris proved itself to be, or to deny himself the personal child-like delights of plaster paddling. In 1881 he intoduced the use of massage in the treatment of fractures. Its application was not only to the neighbourhood of the fracture but to the actual fracture site itself and he claimed that massage allayed, almost instantly, the pain and that it accelerated the process of repair. Towards the end of his life he declared dogmatically that rest was a dangerous remedy and that action was life in the treatment of orthopædic disease. When Championnière died his teaching died with him, at least for a while. The official manuals by the late Professor Leriche, published in 1916 for the guidance of French army surgeons, recommended still the methods of immobilisation. The sole trace of Championnière's influence is to be detected in the early mobilisation of fractures involving joints, particularly those which occur in the neighbourhood of the elbow joint.

How then are we to explain the fact that opposite and irreconcilable methods have been recommended in the treatment of bone and joint injury? How are we to reconcile the teaching of Thomas of Liverpool who advocated rest and Championnière of France who advocated exercise.

The first inference to be drawn is surely that the tissues of the body have such a strong intrinsic power of repair that they will effect a cure even in the most disadvantageous circumstances. Inspiratory movements never leave a fractured rib or clavicle at rest for a moment yet healing is invariably accomplished. Fractures in wild animals and primitive people heal without medical intervention. Many it is true would have been better for surgical attention or, when one sees what can occasionally happen under so-called modern surgical adventure, would they? There are certain matters happily which do not admit of difference of

opinion. No one can doubt that the more accurately a surgeon re-apposes the ends of a fracture or keeps an inflamed joint at rest in the position of maximal function the easier he makes Nature's task. Common sense dictates rest during the early stages of orthopædic injury or infection or in cases where pain has for long been endured in chronic arthritic conditions. Yet it is clear that a stage will pretty rapidly be reached when rest can no longer be of service. One cannot operate on un-united fractures nor examine the conditions seen in limbs amputated after long periods of infection following severe compound fracture without being convinced that mobilisation, i.e., action, must play a part in the final stages of repair in the treatment of disabilities following bone injury. Muscles are bound down by inflammatory exudate so that their fibres are necessarily limited in their excursions. The whole connective tissue system of the limb has been swept by an inflammatory tide. Round the moving parts lie envelopes of newly organised inflammatory tissues. When such a stage of resolution has been reached rest can no longer be of help and its continuance must surely make the chances of eventual movement less and less likely. Can one conceive of any means which will lead to loosening of the plastic cellular bonds and thickenings which surround the muscles and joints except those implied under the all-embracing term mobilisation, i.e., massage, passive manipulation, and active or voluntary movement. Of these three there are many reasons for expecting the best results to follow voluntary activity. The voluntary impulse which sets a group of muscles into action exerts at the same time a regulating influence on the vasomotor connections of the part. Voluntary muscular movement therefore controls swelling of the limb by giving the maximum propelling impulse to venous and lymphatic return. The muscles of the damaged or diseased part are the agents by which increase of motion is to be obtained. The machinery which can set the muscles to work lies in the patient's own central nervous system and the only thing which can set this machinery going is the patient's own will. The sooner the patient realises that progress in movement depends on his own effort carried out in small doses many times daily, the quicker and better will be the ultimate result.

Each year, about this time, students are forced to listen to a member of staff delivering what is, with flattery to the speaker, called an Oration. The purpose of Oratory alone is not truth but persuasion, according to Macauley. It would be too much to hope that I have persuaded you to any point of view in the controversy on rest versus exercise. I should, however, be content if, the next time you put a patient to rest, order passive physical measures or impose a splint, you ask yourself this question—"Why am I prescribing this, what good will it do and what harm may it do?"

It is poetry that has made man look, through the mists which surround him, to the heights, so let the words of John Dryden express what I have been struggling so long to say :

"Better to hunt in fields for health unbought,
Than fee the doctor for a nauseous draught,
The wise for cure on *exercise* depend,
God never made his work for man to mend."

The following books and articles have been consulted in the preparation of this address—

BICK, EDGAR M. *Source Book of Orthopædics.*

CYRIAX, J. *Orthopædic Medicine.*

DAVID, J. P. "Dissertations sur les effects du mouvement et de repos dans les maladies chirurgicales."

DELPECH, J. M. *L'orthomorphie.*

EPSTEIN, SIGMUND. *Annals of Medical History,* New Series, 1937.

JONES, A. ROCYN. "Historical Review of Orthopædics" in *Cripples Journal,* 1925.

KEITH, SIR ARTHUR. *Menders of the Maimed.*

LEVAY, D., F.R.C.S. *The Life of Hugh Owen Thomas.*

LUCAS-CHAMPIONNIERE, J. "Le massage et la mobilisation dans le traitement des fractures."

MAGNUS, R. *Körperstellung.*

MENNELL, J. *The Science and Art of Joint Manipulation.*

WATSON, F. *Civilisation and the Cripple.*

WRIGHT, WILHELMINA. *Amer. J. Surg.,* 1926, Vol. 1, No. 6.

REVIEWS

TEXT BOOK OF BRITISH SURGERY. Edited by Sir Henry Souttar, C.B.E., D.M.(Oxon), F.R.C.S., and J. C. Goligher, Ch.M.(Edin.), F.R.C.S.(Edin. & Eng.). Volume 3. (Pp. vii+619; figs. 207. 105s.) London: Wm. Heinemann, Medical Books Ltd., 1958.

THIS is the third volume of this work of four volumes. The contributors are all specialists in the particular fields of surgery covered, and the approach is essentially clinical and practical.

The subjects discussed in this volume include genito-urinary surgery, peripheral vascular diseases, plastic surgery, actinomycosis, radiology, and radiotherapy. In addition, there are sections on tropical surgery, venereal diseases, the adrenal and parathyroid glands, blood transfusion, fluids and electrolytes, hæmorrhage, shock and chemo-therapy.

The book is essentially one for the general surgeon or post-graduate student working for a higher examination, and is highly recommended. J. M. M.

IDEALS IN MEDICINE. Edited by Vincent Edmunds and C. Gordon Scorer. (Pp. xi + 192. 12s. 6d.) London: Tyndale Press, 1958.

THIS book deals with that fundamental subject—medical ethics—which forms the basis of medicine as a vocational art. In the practice of medicine our actions are continuously guided by a code of behaviour and moral outlook which we have come to accept as part of the profession of medicine. To a certain extent, medical ethics may be coloured by personal views, the influence of revered chiefs or by wider moral and spiritual values. The authors believe that the distinctive stamp of good medical ethics is given by Christian ideals. They further consider that the best standards will be achieved with a well-prepared mind and a Christian trained conscience.

This theme is elaborated and extended throughout the text, which covers a wide variety of subjects—all of which are of fundamental importance. The authors consider the doctor's personal standards and his ultimate loyalties; his relationship to the disabled, incurable or dying patient; his relationship to the patient's family; and his relationship to his own colleagues.

This book is not only a guide to all embarking on the profession of medicine but a challenge to those already practising it, demanding that all such should examine their conscience to see if they are practising medicine to the very highest moral and ethical standards. M. G. N.